VIDEO CASE REPORT

Laser dissection for recalcitrant pancreaticojejunostomy anastomotic stricture

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The patient was a 66-year-old woman with a history of stage IIA ampullary adenocarcinoma (T3N0M0) who had undergone a Whipple procedure 3 years before presentation in addition to 6 cycles of adjuvant gemcitabine. She came to our clinic after 6 episodes of acute recurrent pancreatitis after her surgery. Upon completion of her chemotherapy 2 years before presentation, she began to experience recurrent bouts of pancreatitis characterized by abdominal pain, nausea and vomiting, and elevated lipase levels; CT images demonstrated peripancreatic edema. CT imaging also revealed a dilated pancreatic duct, leading to concern for a stenosed pancreaticojejunostomy (PJ) anastomosis.

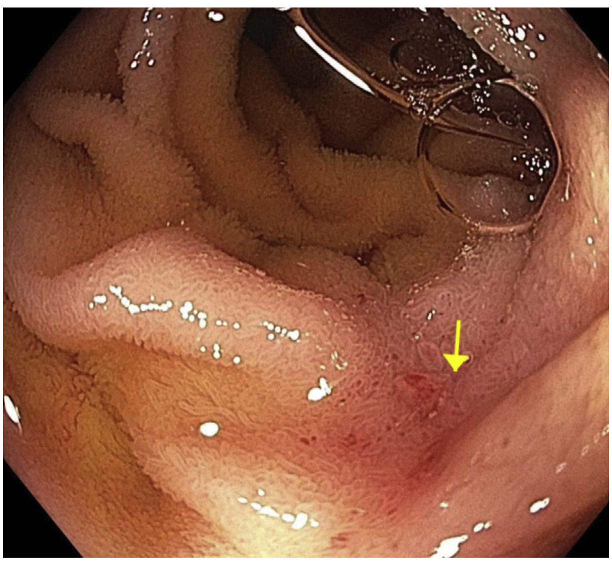

Figure 1. Stenosis of pancreaticojejunostomy anastomosis *(arrow)*.

We initially recommended ERCP, during which a stricture was found at the PJ anastomosis (Fig. 1) in addition to another midbody stricture (Fig. 2) with severe tortuosity (Fig. 3). Over 6 sessions, these strictures were repeatedly dilated, and stents were placed to a maximum of 19F in combined stent diameters. Strictureplasty of the PJ anastomosis was also performed once by use of cautery and balloon dilation, with improvement in pain. However, after a stent-free trial, the patient's pain returned within 3 months, prompting the decision to undergo a stricture dissection with holmium laser (272 μm fiber, 10 Hz at 0.5 Joules for a total of 193.5 Joules) in 3 quadrants for 3 mm (Fig. 4). In this technique (Video 1, available online at www.VideoGIE.org), the laser fiber is placed side by side

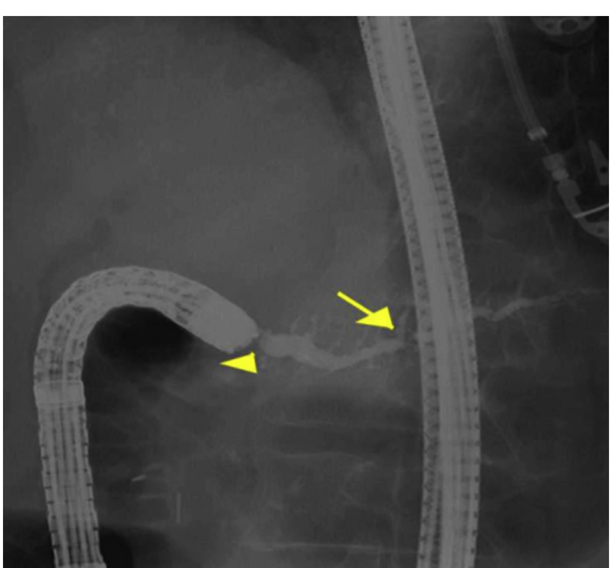

Figure 2. Initial pancreatogram demonstrating midbody stricture *(arrow)* and anastomotic stricture *(arrowhead)*.

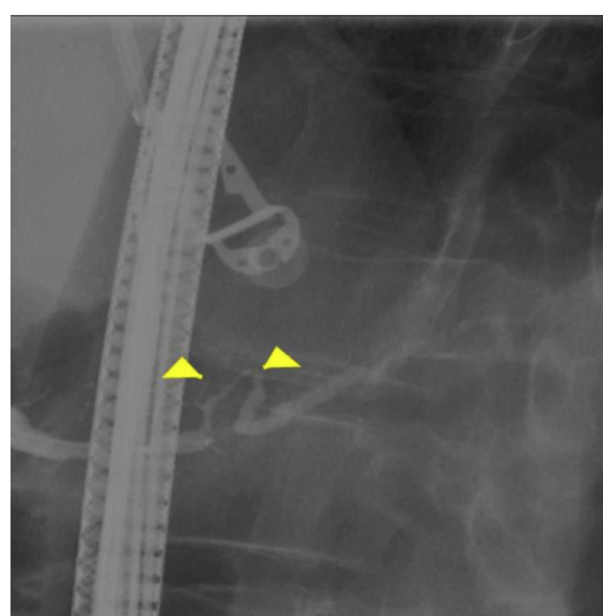

Figure 3. Initial pancreatogram demonstrating tortuous duct *(outlined by arrowheads)*.

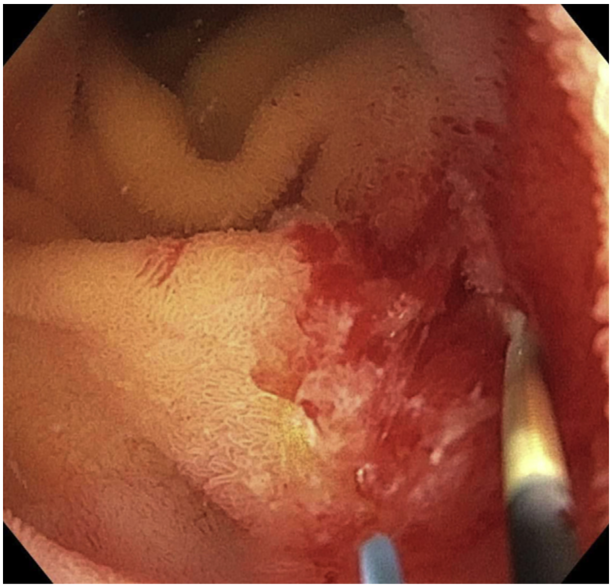

Figure 4. Blue laser fiber during dissection.

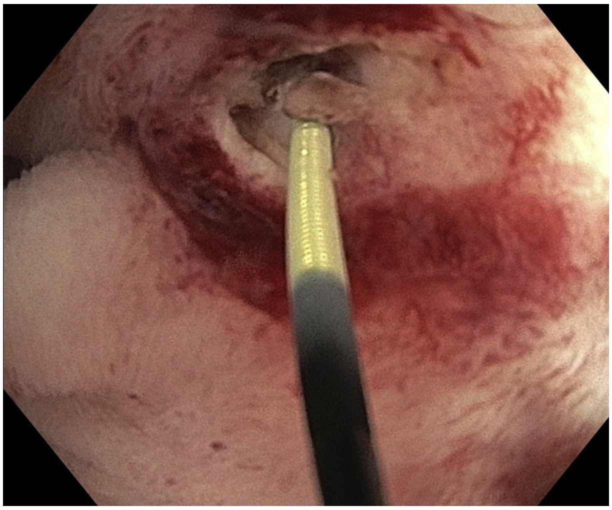

Figure 5. Improved patency of anastomotic stricture after laser dissection.

to the guidewire and water immersion is performed before dissection. The fiber is then used to target specific areas of the stricture with water irrigation used to optimize visualization of the dissection and to absorb the laser energy to reduce the risk of known adverse events of laser therapy including bleeding and perforation.[1,2] This therapy eliminated the recurrent acute attacks of pancreatitis and improved the patency of the anastomotic stricture (Fig. 5). However, milder but constant pain continued, which was thought to be related to the midbody stricture. On repeated ERCP 1 month later, laser dissection was again performed, this time with thulium laser (12W, total of 1691 Joules) to target the midbody stricture for a length of 5 mm (Figs. 5 and 6). The thulium laser with a

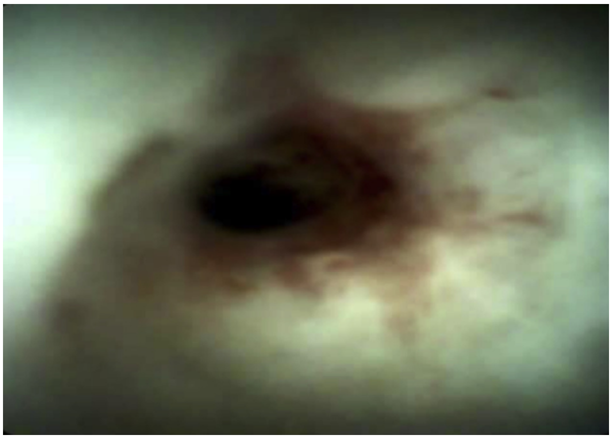

Figure 6. Stricture in the body of the pancreas as seen on pancreatoscopy after second laser treatment.

Figure 7. Improvement of stricture in the body of the pancreas after laser dissection as seen on pancreatogram.

200-μm fiber was chosen for the midbody stricture over the holmium laser because of its shallower tissue penetration depth (0.25 mm) and less coagulation with more of a "cut" effect, allowing for more-precise treatment within the duct.[2] This allowed for improvement of the strictures, as seen on the pancreatogram (Fig. 7). The patient's pain significantly improved over 5 months of follow-up care, with continued stent placement and no further episodes of acute pain flare-ups.

For soft-tissue applications, holmium and laser therapy has been primarily used in surgery and urology for resection, enucleation, ablation, and vaporization of tissue. Within the field of gastroenterology, laser therapy has primarily been used for lithotripsy and less frequently for hemostasis and ablation.[3-7] More recently, we have demonstrated its potential use in the treatment of neoplastic tissue and recalcitrant strictures, but the case herein is the first noted in the pancreas in surgically altered anatomy requiring the use of a colonoscope.[8] Given that laser therapy has mainly been used in cases refractory to standard therapies, larger prospective studies are needed to determine its safety and efficacy.

DISCLOSURE

Dr Shah is a consultant for Boston Scientific, Cook Medical, and Olympus and a member of the Advisory Board of Boston Scientific. The other author disclosed no financial relationships relevant to this publication.

Abbreviation: PJ, pancreaticojejunostomy.

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